

Sequence Listing

<110> Baker, Kevin
 Botstein, David
 Eaton, Dan
 Ferrara, Napoleone
 Filvaroff, Ellen
 Gerritsen, Mary
 Goddard, Audrey
 Godowski, Paul
 Grimaldi, Christopher
 Gurney, Austin
 Hillan, Kenneth
 Kljavin, Ivar
 Napier, Mary
 Roy, Margaret
 Tumas, Daniel
 Wood, William

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35 40 45
Asp Asp Asp Asp Asp Glu Asp Asn Ser Leu Phe Pro Thr Arg Glu
50 55 60
Pro Arg Ser His Phe Phe Pro Phe Asp Leu Phe Pro Met Cys Pro
65 70 75
Phe Gly Cys Gln Cys Tyr Ser Arg Val Val His Cys Ser Asp Leu
80 85 90
Gly Leu Thr Ser Val Pro Thr Asn Ile Pro Phe Asp Thr Arg Met
95 100 105
Leu Asp Leu Gln Asn Asn Lys Ile Lys Glu Ile Lys Glu Asn Asp
110 115 120
Phe Lys Gly Leu Thr Ser Leu Tyr Gly Leu Ile Leu Asn Asn Asn
125 130 135
Lys Leu Thr Lys Ile His Pro Lys Ala Phe Leu Thr Thr Lys Lys
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Leu Arg Arg Leu Tyr Leu Ser His Asn Gln Leu Ser Glu Ile Pro
155 160 165
Leu Asn Leu Pro Lys Ser Leu Ala Glu Leu Arg Ile His Glu Asn
170 175 180
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185 190 195
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| Thr | Leu | Leu | Glu | Leu | His | Leu | Asp | Tyr | Asn | Lys | Ile | Ser | Thr | Val |
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| Glu | Leu | Glu | Asp | Phe | Lys | Arg | Tyr | Lys | Glu | Leu | Gln | Arg | Leu | Gly |
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| Leu | Gly | Asn | Asn | Lys | Ile | Thr | Asp | Ile | Glu | Asn | Gly | Ser | Leu | Ala |
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| Ile | Phe | Leu | His | Ser | Asn | Ser | Ile | Ala | Arg | Val | Gly | Val | Asn | Asp |
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| Phe | Cys | Pro | Thr | Val | Pro | Lys | Met | Lys | Lys | Ser | Leu | Tyr | Ser | Ala |
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| Thr Arg Gly Pro Gly Arg Val Ser Cys Lys Asn Ile Lys Pro Glu | 95 | 100 | 105 |
| Cys Pro Thr Pro Ala Cys Gly Gln Pro Arg Gln Leu Pro Gly His | 110 | 115 | 120 |
| Cys Cys Gln Thr Cys Pro Gln Glu Arg Ser Ser Ser Glu Arg Gln | 125 | 130 | 135 |
| Pro Ser Gly Leu Ser Phe Glu Tyr Pro Arg Asp Pro Glu His Arg | 140 | 145 | 150 |
| Ser Tyr Ser Asp Arg Gly Glu Pro Gly Ala Glu Glu Arg Ala Arg | 155 | 160 | 165 |
| Gly Asp Gly His Thr Asp Phe Val Ala Leu Leu Thr Gly Pro Arg | 170 | 175 | 180 |
| Ser Gln Ala Val Ala Arg Ala Arg Val Ser Leu Leu Arg Ser Ser | 185 | 190 | 195 |
| Leu Arg Phe Ser Ile Ser Tyr Arg Arg Leu Asp Arg Pro Thr Arg | 200 | 205 | 210 |
| Ile Arg Phe Ser Asp Ser Asn Gly Ser Val Leu Phe Glu His Pro | 215 | 220 | 225 |
| Ala Ala Pro Thr Gln Asp Gly Leu Val Cys Gly Val Trp Arg Ala | 230 | 235 | 240 |
| Val Pro Arg Leu Ser Leu Arg Leu Leu Arg Ala Glu Gln Leu His | 245 | 250 | 255 |
| Val Ala Leu Val Thr Leu Thr His Pro Ser Gly Glu Val Trp Gly | 260 | 265 | 270 |
| Pro Leu Ile Arg His Arg Ala Leu Ala Ala Glu Thr Phe Ser Ala | 275 | 280 | 285 |
| Ile Leu Thr Leu Glu Gly Pro Pro Gln Gln Gly Val Gly Gly Ile | 290 | 295 | 300 |
| Thr Leu Leu Thr Leu Ser Asp Thr Glu Asp Ser Leu His Phe Leu | 305 | 310 | 315 |
| Leu Leu Phe Arg Gly Leu Leu Glu Pro Arg Ser Gly Gly Leu Thr | 320 | 325 | 330 |
| Gln Val Pro Leu Arg Leu Gln Ile Leu His Gln Gly Gln Leu Leu | 335 | 340 | 345 |
| Arg Glu Leu Gln Ala Asn Val Ser Ala Gln Glu Pro Gly Phe Ala | 350 | 355 | 360 |
| Glu Val Leu Pro Asn Leu Thr Val Gln Glu Met Asp Trp Leu Val | | | |

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| Leu Arg Ile Ser Gly His Ile Ala Ala | Arg Lys Ser Cys Asp Val | |
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| Leu Gln Ser Val Leu Cys Gly Ala Asp | Ala Leu Ile Pro Val Gln | |
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| Thr Gly Ala Ala Gly Ser Ala Ser Leu | Thr Leu Leu Gly Asn Gly | |
| 425 | 430 | 435 |
| Ser Leu Ile Tyr Gln Val Gln Val Val | Gly Thr Ser Ser Glu Val | |
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| Val Ala Met Thr Leu Glu Thr Lys Pro | Gln Arg Arg Asp Gln Arg | |
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| Thr Val Leu Cys His Met Ala Gly Leu | Gln Pro Gly Gly His Thr | |
| 470 | 475 | 480 |
| Ala Val Gly Ile Cys Pro Gly Leu Gly | Ala Arg Gly Ala His Met | |
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| Pro Asp Gly Glu Leu Arg Gly His Val | Ala Ala Leu Pro Tyr Cys | |
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| Gly His Ser Ala Arg His Asp Thr Leu | Pro Val Pro Leu Ala Gly | |
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| Pro Glu Leu Leu Arg His Leu Ala Lys | Gly Met Ala Ser Leu Met | |
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 50 55 60
 Ser Arg Pro Glu Pro Asp Pro Gln His Pro Ala Pro Ala Gly Glu
 65 70 75
 Pro Gly Tyr Ser Cys Thr Cys Pro Ala Gly Ile Ser Gly Ala Asn
 80 85 90
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 Gly Asn Cys Ser Ser Ser Ser Ser Ser Ser Asp Gly Tyr Leu

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| Arg | Gln | Leu | Gln | Pro 155 | Val | Pro | Ala | Thr | Gln 160 | Glu | Pro | Asp | Lys | Ile 165 |
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| Lys | Thr | Gly | Gln | Lys 185 | Val | Val | Glu | Met | Lys 190 | Trp | Asp | Gln | Val | Glu 195 |
| Val | Ile | Pro | Asp | Ile 200 | Ala | Cys | Gly | Asn | Ala 205 | Ser | Ser | Asn | Ser | Ser 210 |
| Ala | Gly | Gly | Arg | Leu 215 | Val | Ser | Phe | Glu | Val 220 | Pro | Gln | Asn | Thr | Ser 225 |
| Val | Lys | Ile | Arg | Gln 230 | Asp | Ala | Thr | Ala | Ser 235 | Leu | Ile | Leu | Leu | Trp 240 |
| Lys | Val | Thr | Ala | Thr 245 | Gly | Phe | Gln | Gln | Cys 250 | Ser | Leu | Ile | Asp | Gly 255 |
| Arg | Ser | Val | Thr | Pro 260 | Leu | Gln | Ala | Ser | Gly 265 | Gly | Leu | Val | Leu | Leu 270 |
| Glu | Glu | Met | Leu | Ala 275 | Leu | Gly | Asn | Asn | His 280 | Phe | Ile | Gly | Phe | Val 285 |
| Asn | Asp | Ser | Val | Thr 290 | Lys | Ser | Ile | Val | Ala 295 | Leu | Arg | Leu | Thr | Leu 300 |
| Val | Val | Lys | Val | Ser 305 | Thr | Cys | Val | Pro | Gly 310 | Glu | Ser | His | Ala | Asn 315 |
| Asp | Leu | Glu | Cys | Ser 320 | Gly | Lys | Gly | Lys | Cys 325 | Thr | Thr | Lys | Pro | Ser 330 |
| Glu | Ala | Thr | Phe | Ser 335 | Cys | Thr | Cys | Glu | Glu 340 | Gln | Tyr | Val | Gly | Thr 345 |
| Phe | Cys | Glu | Glu | Tyr 350 | Asp | Ala | Cys | Gln | Arg 355 | Lys | Pro | Cys | Gln | Asn 360 |
| Asn | Ala | Ser | Cys | Ile 365 | Asp | Ala | Asn | Glu | Lys 370 | Gln | Asp | Gly | Ser | Asn 375 |
| Phe | Thr | Cys | Val | Cys 380 | Leu | Pro | Gly | Tyr | Thr 385 | Gly | Glu | Leu | Cys | Gln 390 |
| Ser | Lys | Ile | Asp | Tyr 395 | Cys | Ile | Leu | Asp | Pro 400 | Cys | Arg | Asn | Gly | Ala 405 |

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| | | |
|-----------------|---------------------|-------------------------|
| Thr Cys Ile Ser | Ser Leu Ser Gly Phe | Thr Cys Gln Cys Pro Glu |
| 410 | 415 | 420 |
| Gly Tyr Phe Gly | Ser Ala Cys Glu Glu | Lys Val Asp Pro Cys Ala |
| 425 | 430 | 435 |
| Ser Ser Pro Cys | Gln Asn Asn Gly Thr | Cys Tyr Val Asp Gly Val |
| 440 | 445 | 450 |
| His Phe Thr Cys | Asn Cys Ser Pro Gly | Phe Thr Gly Pro Thr Cys |
| 455 | 460 | 465 |
| Ala Gln Leu Ile | Asp Phe Cys Ala Leu | Ser Pro Cys Ala His Gly |
| 470 | 475 | 480 |
| Thr Cys Arg Ser | Val Gly Thr Ser Tyr | Lys Cys Leu Cys Asp Pro |
| 485 | 490 | 495 |
| Gly Tyr His Gly | Leu Tyr Cys Glu Glu | Glu Tyr Asn Glu Cys Leu |
| 500 | 505 | 510 |
| Ser Ala Pro Cys | Leu Asn Ala Ala Thr | Cys Arg Asp Leu Val Asn |
| 515 | 520 | 525 |
| Gly Tyr Glu Cys | Val Cys Leu Ala Glu | Tyr Lys Gly Thr His Cys |
| 530 | 535 | 540 |
| Glu Leu Tyr Lys | Asp Pro Cys Ala Asn | Val Ser Cys Leu Asn Gly |
| 545 | 550 | 555 |
| Ala Thr Cys Asp | Ser Asp Gly Leu Asn | Gly Thr Cys Ile Cys Ala |
| 560 | 565 | 570 |
| Pro Gly Phe Thr | Gly Glu Glu Cys Asp | Ile Asp Ile Asn Glu Cys |
| 575 | 580 | 585 |
| Asp Ser Asn Pro | Cys His His Gly Gly | Ser Cys Leu Asp Gln Pro |
| 590 | 595 | 600 |
| Asn Gly Tyr Asn | Cys His Cys Pro His | Gly Trp Val Gly Ala Asn |
| 605 | 610 | 615 |
| Cys Glu Ile His | Leu Gln Trp Lys Ser | Gly His Met Ala Glu Ser |
| 620 | 625 | 630 |
| Leu Thr Asn Met | Pro Arg His Ser Leu | Tyr Ile Ile Ile Gly Ala |
| 635 | 640 | 645 |
| Leu Cys Val Ala | Phe Ile Leu Met Leu | Ile Ile Leu Ile Val Gly |
| 650 | 655 | 660 |
| Ile Cys Arg Ile | Ser Arg Ile Glu Tyr | Gln Gly Ser Ser Arg Pro |
| 665 | 670 | 675 |
| Ala Tyr Glu Glu | Phe Tyr Asn Cys Arg | Ser Ile Asp Ser Glu Phe |
| 680 | 685 | 690 |
| Ser Asn Ala Ile | Ala Ser Ile Arg His | Ala Arg Phe Gly Lys Lys |

695

700

705

Ser Arg Pro Ala Met Tyr Asp Val Ser Pro Ile Ala Tyr Glu Asp
710 715 720

Tyr Ser Pro Asp Asp Lys Pro Leu Val Thr Leu Ile Lys Thr Lys
725 730 735

Asp Leu

```
<210> 16
<211> 43
<212> DNA
<213> Artificial Sequence
```

<220>
<223> Synthetic Oligonucleotide Probe

```
<400> 16
tgtaaaacga cggccagtta aatagacctg caattattaa tct 43
```

```
<210> 17
<211> 41
<212> DNA
<213> Artificial Sequence
```

<220>
<223> Synthetic Oligonucleotide Probe

<400> 17
cagqaaacaq ctatqaccac ctqcacacct qcaaattccat t 41

```
<210> 18
<211> 508
<212> DNA
<213> Homo Sapien
```

```
<400> 18
ctctggaagg tcacggccac aggattccaa cagtgtctcc tcatagatgg 50
acgaaagtgt gacccccctt tcaggctttc aggggggactg gtcctcctgg 100
aggagatgct cgccttgggg aataatcact ttattggttt tgtgaatgat 150
tctgtgacta agtctattgt ggctttgcgc ttaactctgg tggagaagg 200
cagcacctgt gtgccggggg agagtcacgc aaatgacttg gagtgttcag 250
gaaaaggaaa atgcaccacg aagccgtcag aggcaacttt ttctgtacc 300
tgtgaggagc agtacgtggg tactttctgt gaagaatacg atgcttgcca 350
gaggaaacct tgccaaaaca acgcgagctg tattgatgca aatgaaaagc 400
aagatgggag caatttcacc tgtgtttgcc ttcttggtta tactggagag 450
ctttgccaac cgaactgaga ttggagcgaa cgacctacac cgaactgaga 500
```

taggggag 508

<210> 19
<211> 508
<212> DNA
<213> Homo Sapien

<400> 19
ctctggaagg tcacggccac aggattccaa cagtgtccc tcatagatgg 50
acgaaagtgt gacccccctt tcaggctttc agggggactg gtcctcctgg 100
aggagatgct cgccttgggg aataatcact ttattggttt tgtgaatgat 150
tctgtgacta agtctattgt ggctttgcgc ttaactctgg tggagaagg 200
cagcacctgt gtgccggggg agagtcacgc aaatgacttg gagtgttcag 250
gaaaaggaaa atgcaccacg aagccgtcag aggcaacttt ttctgtacc 300
tgtgaggagc agtacgtggg tactttctgt gaagaatacg atgcttgcca 350
gaggaaacct tgccaaaaca acgcgagctg tattgatgca aatgaaaagc 400
aagatgggag caatttcacc tgtgtttgcc ttctgggta tactggagag 450
ctttgccaac cgaactgaga ttggagcgaa cgacctacac cgaactgaga 500
taggggag 508

<210> 20
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Oligonucleotide Probe

<400> 20
ctctggaagg tcacggccac agg 23

<210> 21
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 21
ctcagttcgg ttggcaaagc tctc 24

<210> 22
<211> 69
<212> DNA
<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 22

cagtgtctccc tcatagatgg acgaaagtgt gacccccctt tcaggcgaga 50

gctttgccaa ccgaactga 69

<210> 23

<211> 1520

<212> DNA

<213> Homo Sapien

<400> 23

gctgagtctg ctgtctctgc tgctgtgtct ccagcctgta acctgtgcct 50

acaccacgcc agggcccccc agagccctca ccacgtctgg cgccccaga 100

gccacacca tgccggggcac ctacgtctcc tcgaccacac tcagtagtcc 150

cagcaccag ggcttgaag agcaggcacg ggccctgatg cgggacttcc 200

cgctcgtgga cggccacaac gacctgcccc tggctctaag gcaggtttac 250

cagaaagggc tacaggatgt taacctgcgc aatttcagct acggccagac 300

cagcctggac aggccttagag atggcctcgt gggcgcccag ttctggtcag 350

cctatgtgcc atgccagacc caggaccggg atgccctgcg cctcacctg 400

gagcagattg acctcatagc ccgcatgtgt gcctctatt ctgagctgga 450

gcttgtgacc tcggctaaag ctctgaacga cactcagaaa ttggcctgcc 500

tcctcgggtg agaggggtgg cactcgtctg acaatagcct ctccatctta 550

cgtaccttct acatgctggg agtgcgctac ctgacgtctc cccacacctg 600

caacacaccc tgggcagaga gctccgctaa gggcgctccac tccttctaca 650

acaacatcag cgggctgact gactttggtg agaaggtggt ggcagaaatg 700

aaccgcctgg gcatgatggt agacttatcc catgtctcag atgctgtggc 750

acggcgggcc ctggaagtgt cacaggcacc tgtgatcttc tcccactcgg 800

ctgcccgggg tgtgtgcaac agtgctcgga atgttctga tgacatctg 850

cagcttctga agaagaacgg tggcgctctg atgggtgtctt tgtccatggg 900

agtaatacag tgcaacccat cagccaatgt gtccactgtg gcagatcact 950

tcgaccacat caaggctgtc attggatcca agttcatcgg gattggtgga 1000

gattatgatg gggccggcaa attccctcag gggctggaag acgtgtccac 1050

ataccgggtc ctgatagagg agttgctgag tcgtggctgg agtgaggaag 1100

agcttcaggg tgtccttcgt ggaaacctgc tgcgggtctt cagacaagtg 1150

gaaaagggtac aggaagaaaa caaatggcaa agccccttgg aggacaagtt 1200
 cccggatgag cagctgagca gttcctgcca ctccgacctc tcacgtctgc 1250
 gtcagagaca gagtctgact tcaggccagg aactcactga gattcccata 1300
 cactggacag ccaagttacc agccaagtgg tcagtctcag agtctctccc 1350
 ccacatggcc ccagtccttg cagttgtggc caccttccca gtccttattc 1400
 tgtggctctg atgaccaggt tagtctgcc agatgtcact gtagcaagcc 1450
 acagacaccc cacaaagttc cctgtgtgtg caggcacaaa tatttctga 1500
 aataaatggt ttggacatag 1520

<210> 24
 <211> 433
 <212> PRT
 <213> Homo Sapien

<400> 24
 Met Pro Gly Thr Tyr Ala Pro Ser Thr Thr Leu Ser Ser Pro Ser
 1 5 10 15
 Thr Gln Gly Leu Gln Glu Gln Ala Arg Ala Leu Met Arg Asp Phe
 20 25 30
 Pro Leu Val Asp Gly His Asn Asp Leu Pro Leu Val Leu Arg Gln
 35 40 45
 Val Tyr Gln Lys Gly Leu Gln Asp Val Asn Leu Arg Asn Phe Ser
 50 55 60
 Tyr Gly Gln Thr Ser Leu Asp Arg Leu Arg Asp Gly Leu Val Gly
 65 70 75
 Ala Gln Phe Trp Ser Ala Tyr Val Pro Cys Gln Thr Gln Asp Arg
 80 85 90
 Asp Ala Leu Arg Leu Thr Leu Glu Gln Ile Asp Leu Ile Arg Arg
 95 100 105
 Met Cys Ala Ser Tyr Ser Glu Leu Glu Leu Val Thr Ser Ala Lys
 110 115 120
 Ala Leu Asn Asp Thr Gln Lys Leu Ala Cys Leu Ile Gly Val Glu
 125 130 135
 Gly Gly His Ser Leu Asp Asn Ser Leu Ser Ile Leu Arg Thr Phe
 140 145 150
 Tyr Met Leu Gly Val Arg Tyr Leu Thr Leu Thr His Thr Cys Asn
 155 160 165
 Thr Pro Trp Ala Glu Ser Ser Ala Lys Gly Val His Ser Phe Tyr
 170 175 180

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| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Asn | Asn | Ile | Ser | Gly | Leu | Thr | Asp | Phe | Gly | Glu | Lys | Val | Val | Ala | |
| | | | | 185 | | | | | 190 | | | | | 195 | |
| Glu | Met | Asn | Arg | Leu | Gly | Met | Met | Val | Asp | Leu | Ser | His | Val | Ser | |
| | | | | 200 | | | | | 205 | | | | | 210 | |
| Asp | Ala | Val | Ala | Arg | Arg | Ala | Leu | Glu | Val | Ser | Gln | Ala | Pro | Val | |
| | | | | 215 | | | | | 220 | | | | | 225 | |
| Ile | Phe | Ser | His | Ser | Ala | Ala | Arg | Gly | Val | Cys | Asn | Ser | Ala | Arg | |
| | | | | 230 | | | | | 235 | | | | | 240 | |
| Asn | Val | Pro | Asp | Asp | Ile | Leu | Gln | Leu | Leu | Lys | Lys | Asn | Gly | Gly | |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Val | Val | Met | Val | Ser | Leu | Ser | Met | Gly | Val | Ile | Gln | Cys | Asn | Pro | |
| | | | | 260 | | | | | 265 | | | | | 270 | |
| Ser | Ala | Asn | Val | Ser | Thr | Val | Ala | Asp | His | Phe | Asp | His | Ile | Lys | |
| | | | | 275 | | | | | 280 | | | | | 285 | |
| Ala | Val | Ile | Gly | Ser | Lys | Phe | Ile | Gly | Ile | Gly | Gly | Asp | Tyr | Asp | |
| | | | | 290 | | | | | 295 | | | | | 300 | |
| Gly | Ala | Gly | Lys | Phe | Pro | Gln | Gly | Leu | Glu | Asp | Val | Ser | Thr | Tyr | |
| | | | | 305 | | | | | 310 | | | | | 315 | |
| Pro | Val | Leu | Ile | Glu | Glu | Leu | Leu | Ser | Arg | Gly | Trp | Ser | Glu | Glu | |
| | | | | 320 | | | | | 325 | | | | | 330 | |
| Glu | Leu | Gln | Gly | Val | Leu | Arg | Gly | Asn | Leu | Leu | Arg | Val | Phe | Arg | |
| | | | | 335 | | | | | 340 | | | | | 345 | |
| Gln | Val | Glu | Lys | Val | Gln | Glu | Glu | Asn | Lys | Trp | Gln | Ser | Pro | Leu | |
| | | | | 350 | | | | | 355 | | | | | 360 | |
| Glu | Asp | Lys | Phe | Pro | Asp | Glu | Gln | Leu | Ser | Ser | Ser | Cys | His | Ser | |
| | | | | 365 | | | | | 370 | | | | | 375 | |
| Asp | Leu | Ser | Arg | Leu | Arg | Gln | Arg | Gln | Ser | Leu | Thr | Ser | Gly | Gln | |
| | | | | 380 | | | | | 385 | | | | | 390 | |
| Glu | Leu | Thr | Glu | Ile | Pro | Ile | His | Trp | Thr | Ala | Lys | Leu | Pro | Ala | |
| | | | | 395 | | | | | 400 | | | | | 405 | |
| Lys | Trp | Ser | Val | Ser | Glu | Ser | Ser | Pro | His | Met | Ala | Pro | Val | Leu | |
| | | | | 410 | | | | | 415 | | | | | 420 | |
| Ala | Val | Val | Ala | Thr | Phe | Pro | Val | Leu | Ile | Leu | Trp | Leu | | | |
| | | | | 425 | | | | | 430 | | | | | | |

<210> 25
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 25
agttctgggc agcctatgtg cc 22

<210> 26
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 26
cgtgatggcg tctttgtcca tggg 24

<210> 27
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 27
ctccaccaat cccgatgaac ttgg 24

<210> 28
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 28
gagcagattg acctcatagc ccgcatgtgt gcctcctatt ctgagctgga 50

<210> 29
<211> 1416
<212> DNA
<213> Homo Sapien

<400> 29
aaaacctata aatattccgg attattcata ccgtcccacc atcggggcgcg 50
gatccgcggc cgcgaattct aaaccaacat gccgggcacc tacgctccct 100
cgaccacact cagtagtccc agcaccacgg gcctgcaaga gcaggcacgg 150
gccctgatgc gggacttccc gctcgtggac ggccacaacg acctgccct 200
ggtcctaagg caggtttacc agaaagggt acaggatgtt aacctgcgca 250
atttcagcta cggccagacc agcctggaca ggcttagaga tggcctcgtg 300
ggcgcccagt tctggtcagc ctatgtgcca tgccagaccc aggaccggga 350
tgccctgcgc ctcaccctgg agcagattga cctcatagc cgcattgtgtg 400

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| 50 | 55 | 60 |
|--|----|----|
| Tyr Gly Gln Thr Ser Leu Asp Arg Leu Arg Asp Gly Leu Val Gly 65 70 75 | | |
| Ala Gln Phe Trp Ser Ala Tyr Val Pro Cys Gln Thr Gln Asp Arg 80 85 90 | | |
| Asp Ala Leu Arg Leu Thr Leu Glu Gln Ile Asp Leu Ile Arg Arg 95 100 105 | | |
| Met Cys Ala Ser Tyr Ser Glu Leu Glu Leu Val Thr Ser Ala Lys 110 115 120 | | |
| Ala Leu Asn Asp Thr Gln Lys Leu Ala Cys Leu Ile Gly Val Glu 125 130 135 | | |
| Gly Gly His Ser Leu Asp Asn Ser Leu Ser Ile Leu Arg Thr Phe 140 145 150 | | |
| Tyr Met Leu Gly Val Arg Tyr Leu Thr Leu Thr His Thr Cys Asn 155 160 165 | | |
| Thr Pro Trp Ala Glu Ser Ser Ala Lys Gly Val His Ser Phe Tyr 170 175 180 | | |
| Asn Asn Ile Ser Gly Leu Thr Asp Phe Gly Glu Lys Val Val Ala 185 190 195 | | |
| Glu Met Asn Arg Leu Gly Met Met Val Asp Leu Ser His Val Ser 200 205 210 | | |
| Asp Ala Val Ala Arg Arg Ala Leu Glu Val Ser Gln Ala Pro Val 215 220 225 | | |
| Ile Phe Ser His Ser Ala Ala Arg Gly Val Cys Asn Ser Ala Arg 230 235 240 | | |
| Asn Val Pro Asp Asp Ile Leu Gln Leu Leu Lys Lys Asn Gly Gly 245 250 255 | | |
| Val Val Met Val Ser Leu Ser Met Gly Val Ile Gln Cys Asn Pro 260 265 270 | | |
| Ser Ala Asn Val Ser Thr Val Ala Asp His Phe Asp His Ile Lys 275 280 285 | | |
| Ala Val Ile Gly Ser Lys Phe Ile Gly Ile Gly Gly Asp Tyr Asp 290 295 300 | | |
| Gly Ala Gly Lys Phe Pro Gln Gly Leu Glu Asp Val Ser Thr Tyr 305 310 315 | | |
| Pro Val Leu Ile Glu Glu Leu Leu Ser Arg Gly Trp Ser Glu Glu 320 325 330 | | |
| Glu Leu Gln Gly Val Leu Arg Gly Asn Leu Leu Arg Val Phe Arg 335 340 345 | | |

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atatacctgga tgtggtgacc acggaccccc cgcccgacgt gcacgtgagc 850
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 cgccctcaag gatttctct ttcaagccaa ataccagatc cgctaccgag 950
 tggaggacag tgtggactgg aagggtggtg acgatgtgag caaccagacc 1000
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 gccacctctg taccctcact tcagggcacc tgagccaccc tcagcaggag 1500
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 tggttgagtt gcctagaacc cctgccaggg ctgggggtga gaaggggagt 1650
 cattaactccc cattacctag ggccctcca aaagagtcct tttaaataaa 1700
 tgagctattt aggtgctgtg attgtgaaaa aaaaaaaaaa aaaaaaaaaa 1750
 aaaaaaaaaa aaaaaaaaaa aaaaacaaaa aaaaaaaaaa 1790

<210> 32
 <211> 422
 <212> PRT
 <213> Homo Sapien

<400> 32
 Met Pro Ala Gly Arg Arg Gly Pro Ala Ala Gln Ser Ala Arg Arg
 1 5 10 15
 Pro Pro Pro Leu Leu Pro Leu Leu Leu Leu Cys Val Leu Gly
 20 25 30
 Ala Pro Arg Ala Gly Ser Gly Ala His Thr Ala Val Ile Ser Pro
 35 40 45
 Gln Asp Pro Thr Leu Leu Ile Gly Ser Ser Leu Leu Ala Thr Cys
 50 55 60

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Val | His | Gly | Asp | Pro | Pro | Gly | Ala | Thr | Ala | Glu | Gly | Leu | Tyr | 65 | 70 | 75 |
| Trp | Thr | Leu | Asn | Gly | Arg | Arg | Leu | Pro | Pro | Glu | Leu | Ser | Arg | Val | 80 | 85 | 90 |
| Leu | Asn | Ala | Ser | Thr | Leu | Ala | Leu | Ala | Leu | Ala | Asn | Leu | Asn | Gly | 95 | 100 | 105 |
| Ser | Arg | Gln | Arg | Ser | Gly | Asp | Asn | Leu | Val | Cys | His | Ala | Arg | Asp | 110 | 115 | 120 |
| Gly | Ser | Ile | Leu | Ala | Gly | Ser | Cys | Leu | Tyr | Val | Gly | Leu | Pro | Pro | 125 | 130 | 135 |
| Glu | Lys | Pro | Val | Asn | Ile | Ser | Cys | Trp | Ser | Lys | Asn | Met | Lys | Asp | 140 | 145 | 150 |
| Leu | Thr | Cys | Arg | Trp | Thr | Pro | Gly | Ala | His | Gly | Glu | Thr | Phe | Leu | 155 | 160 | 165 |
| His | Thr | Asn | Tyr | Ser | Leu | Lys | Tyr | Lys | Leu | Arg | Trp | Tyr | Gly | Gln | 170 | 175 | 180 |
| Asp | Asn | Thr | Cys | Glu | Glu | Tyr | His | Thr | Val | Gly | Pro | His | Ser | Cys | 185 | 190 | 195 |
| His | Ile | Pro | Lys | Asp | Leu | Ala | Leu | Phe | Thr | Pro | Tyr | Glu | Ile | Trp | 200 | 205 | 210 |
| Val | Glu | Ala | Thr | Asn | Arg | Leu | Gly | Ser | Ala | Arg | Ser | Asp | Val | Leu | 215 | 220 | 225 |
| Thr | Leu | Asp | Ile | Leu | Asp | Val | Val | Thr | Thr | Asp | Pro | Pro | Pro | Asp | 230 | 235 | 240 |
| Val | His | Val | Ser | Arg | Val | Gly | Gly | Leu | Glu | Asp | Gln | Leu | Ser | Val | 245 | 250 | 255 |
| Arg | Trp | Val | Ser | Pro | Pro | Ala | Leu | Lys | Asp | Phe | Leu | Phe | Gln | Ala | 260 | 265 | 270 |
| Lys | Tyr | Gln | Ile | Arg | Tyr | Arg | Val | Glu | Asp | Ser | Val | Asp | Trp | Lys | 275 | 280 | 285 |
| Val | Val | Asp | Asp | Val | Ser | Asn | Gln | Thr | Ser | Cys | Arg | Leu | Ala | Gly | 290 | 295 | 300 |
| Leu | Lys | Pro | Gly | Thr | Val | Tyr | Phe | Val | Gln | Val | Arg | Cys | Asn | Pro | 305 | 310 | 315 |
| Phe | Gly | Ile | Tyr | Gly | Ser | Lys | Lys | Ala | Gly | Ile | Trp | Ser | Glu | Trp | 320 | 325 | 330 |
| Ser | His | Pro | Thr | Ala | Ala | Ser | Thr | Pro | Arg | Ser | Glu | Arg | Pro | Gly | 335 | 340 | 345 |
| Pro | Gly | Gly | Gly | Ala | Cys | Glu | Pro | Arg | Gly | Gly | Glu | Pro | Ser | Ser | | | |

| | | |
|-------------------------------------|-------------------------|-----|
| 350 | 355 | 360 |
| Gly Pro Val Arg Arg Glu Leu Lys Gln | Phe Leu Gly Trp Leu Lys | |
| 365 | 370 | 375 |
| Lys His Ala Tyr Cys Ser Asn Leu Ser | Phe Arg Leu Tyr Asp Gln | |
| 380 | 385 | 390 |
| Trp Arg Ala Trp Met Gln Lys Ser His | Lys Thr Arg Asn Gln Asp | |
| 395 | 400 | 405 |
| Glu Gly Ile Leu Pro Ser Gly Arg Arg | Gly Thr Ala Arg Gly Pro | |
| 410 | 415 | 420 |

Ala Arg

<210> 33
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 33
 cccgcccgcac gtgcacgtga gcc 23

<210> 34
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 34
 tgagccagcc caggaactgc ttg 23

<210> 35
 <211> 50
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 35
 caagtgcgct gcaacccctt tggcatctat ggctccaaga aagccgggat 50

<210> 36
 <211> 1771
 <212> DNA
 <213> Homo Sapien

<400> 36
 cccacgcgtc cgctggtggtt agatcgagca accctctaaa agcagtttag 50

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agtggtaaaa aaaaaaaaaa acacacccaaa cgctcgcagc cacaaaaggg 100
atgaaatttc ttctggacat cctcctgctt ctcccgttac tgatcgtctg 150
ctccctagag tccttcgtga agctttttat tcctaagagg agaaaaatcag 200
tcaccggcga aatcgtgctg attacaggag ctgggcatgg aattgggaga 250
ctgactgcct atgaatttgc taaacttaaa agcaagctgg ttctctggga 300
tataaataag catggactgg aggaaacagc tgccaaatgc aaggggactgg 350
gtgccaaagg tcataccttt gtggtagact gcagcaaccg agaagatatt 400
tacagctctg caaagaagggt gaaggcagaa attggagatg ttagtatttt 450
agtaaataat gctggtgtag tctatacatc agatttgttt gctacacaag 500
atcctcagat tgaaaagact tttgaagtta atgtacttgc acatttctgg 550
actacaaagg catttcttcc tgcaatgacg aagaataacc atggccatat 600
tgtcactgtg gcttcggcag ctggacatgt ctcggtcccc ttcttactgg 650
cttactgttc aagcaagttt gctgctgttg gatttcataa aactttgaca 700
gatgaactgg ctgccttaca aataactgga gtcaaaacaa catgtctgtg 750
tcctaatttc gtaaactctg gcttcatcaa aaatccaagt acaagtttgg 800
gaccactct ggaacctgag gaagtggtaa acaggctgat gcatgggatt 850
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aacattggaa aggatccttc ctgagcgttt cctggcagtt ttaaaacgaa 950
aaatcagtgt taagtttgat gcagttattg gatataaaat gaaagcgcaa 1000
taagcaccta gttttctgaa aactgattta ccaggtttag gttgatgtca 1050
tctaatagtg ccagaatttt aatgtttgaa cttctgtttt ttctaattat 1100
ccccatttct tcaatatcat ttttgaggct ttggcagtct tcatttacta 1150
ccacttggtc tttagccaaa agctgattac atatgatata aacagagaaa 1200
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aaaatttgta ccataaccgt ttatttaaca tatattttta tttttgattg 1350
cacttaaatt ttgtataatt tgtgtttctt tttctgttct acataaaatc 1400
agaaacttca agctctctaa ataaaatgaa ggactatata tagtggtatt 1450
tcacaatgaa tatcatgaac tctcaatggg taggtttcat cctaccatt 1500

| 200 | 205 | 210 |
|-------------------------------------|-------------------------|-----|
| Val Lys Thr Thr Cys Leu Cys Pro Asn | Phe Val Asn Thr Gly Phe | |
| 215 | 220 | 225 |
| Ile Lys Asn Pro Ser Thr Ser Leu Gly | Pro Thr Leu Glu Pro Glu | |
| 230 | 235 | 240 |
| Glu Val Val Asn Arg Leu Met His Gly | Ile Leu Thr Glu Gln Lys | |
| 245 | 250 | 255 |
| Met Ile Phe Ile Pro Ser Ser Ile Ala | Phe Leu Thr Thr Leu Glu | |
| 260 | 265 | 270 |
| Arg Ile Leu Pro Glu Arg Phe Leu Ala | Val Leu Lys Arg Lys Ile | |
| 275 | 280 | 285 |
| Ser Val Lys Phe Asp Ala Val Ile Gly | Tyr Lys Met Lys Ala Gln | |
| 290 | 295 | 300 |

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 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 38
 ggtgaaggca gaaattggag atg 23

<210> 39
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 <212> DNA
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<220>
 <223> Synthetic oligonucleotide probe

<400> 39
 atcccatgca tcagcctgtt tacc 24

<210> 40
 <211> 48
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 40
 gctggtgtag tctatacatc agatttggtt gctacacaag atcctcag 48

<210> 41
 <211> 1377
 <212> DNA
 <213> Homo Sapien

<400> 41

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gcgcggggggc tggagcacca ccaactggag ggtccggagt agcgagcgcc 150
ccgaaggagg ccatcgggga gccgggaggg gggactgcga gaggaccccg 200
gcgtccgggc tcccggtgcc agcgctatga ggccactcct cgtcctgctg 250
ctcctggggc tggcgccggc ctgccccca ctggacgaca acaagatccc 300
cagcctctgc ccggggcacc ccggccttcc aggcacgccc ggccaccatg 350
gcagccaggg cttgccgggc cgcgatggcc gcgacggccg cgacggcgcg 400
cccggggctc cgggagagaa aggcgagggc gggaggccgg gactgccggg 450
acctcgaggg gaccccgggc cgcgaggaga ggcgggaccc gcggggccca 500
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aagcgctccg agagccgggt gcctccgccc tctgacgcac ccttgccctt 600
cgaccgcgtg ctggtgaacg agcagggaca ttacgacgcc gtcaccggca 650
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gtctaccggg ccagcctgca gtttgatctg gtgaagaatg gcgaatccat 750
tgccctcttc ttccagtttt tcgggggggtg gcccagcca gcctcgctct 800
cggggggggc catggtgagg ctggagcctg aggaccaagt gtgggtgcag 850
gtgggtgtgg gtgactacat tggcatctat gccagcatca agacagacag 900
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ttgcttagtg cccactgcaa agtgagctca tgctctcact cctagaagga 1000
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aaaaaaaaa aaaaaaaaaa aaaaaaa 1377

<210> 42

<211> 243
 <212> PRT
 <213> Homo Sapien

<400> 42

| | | | | | | | | | | | | | | | |
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| Met | Arg | Pro | Leu | Leu | Val | Leu | Leu | Leu | Leu | Gly | Leu | Ala | Ala | Gly | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ser | Pro | Pro | Leu | Asp | Asp | Asn | Lys | Ile | Pro | Ser | Leu | Cys | Pro | Gly | |
| | | | 20 | | | | | | 25 | | | | | 30 | |
| His | Pro | Gly | Leu | Pro | Gly | Thr | Pro | Gly | His | His | Gly | Ser | Gln | Gly | |
| | | | 35 | | | | | | 40 | | | | | 45 | |
| Leu | Pro | Gly | Arg | Asp | Gly | Arg | Asp | Gly | Arg | Asp | Gly | Ala | Pro | Gly | |
| | | | 50 | | | | | | 55 | | | | | 60 | |
| Ala | Pro | Gly | Glu | Lys | Gly | Glu | Gly | Gly | Arg | Pro | Gly | Leu | Pro | Gly | |
| | | | 65 | | | | | | 70 | | | | | 75 | |
| Pro | Arg | Gly | Asp | Pro | Gly | Pro | Arg | Gly | Glu | Ala | Gly | Pro | Ala | Gly | |
| | | | 80 | | | | | | 85 | | | | | 90 | |
| Pro | Thr | Gly | Pro | Ala | Gly | Glu | Cys | Ser | Val | Pro | Pro | Arg | Ser | Ala | |
| | | | 95 | | | | | | 100 | | | | | 105 | |
| Phe | Ser | Ala | Lys | Arg | Ser | Glu | Ser | Arg | Val | Pro | Pro | Pro | Ser | Asp | |
| | | | 110 | | | | | | 115 | | | | | 120 | |
| Ala | Pro | Leu | Pro | Phe | Asp | Arg | Val | Leu | Val | Asn | Glu | Gln | Gly | His | |
| | | | 125 | | | | | | 130 | | | | | 135 | |
| Tyr | Asp | Ala | Val | Thr | Gly | Lys | Phe | Thr | Cys | Gln | Val | Pro | Gly | Val | |
| | | | 140 | | | | | | 145 | | | | | 150 | |
| Tyr | Tyr | Phe | Ala | Val | His | Ala | Thr | Val | Tyr | Arg | Ala | Ser | Leu | Gln | |
| | | | 155 | | | | | | 160 | | | | | 165 | |
| Phe | Asp | Leu | Val | Lys | Asn | Gly | Glu | Ser | Ile | Ala | Ser | Phe | Phe | Gln | |
| | | | 170 | | | | | | 175 | | | | | 180 | |
| Phe | Phe | Gly | Gly | Trp | Pro | Lys | Pro | Ala | Ser | Leu | Ser | Gly | Gly | Ala | |
| | | | 185 | | | | | | 190 | | | | | 195 | |
| Met | Val | Arg | Leu | Glu | Pro | Glu | Asp | Gln | Val | Trp | Val | Gln | Val | Gly | |
| | | | 200 | | | | | | 205 | | | | | 210 | |
| Val | Gly | Asp | Tyr | Ile | Gly | Ile | Tyr | Ala | Ser | Ile | Lys | Thr | Asp | Ser | |
| | | | 215 | | | | | | 220 | | | | | 225 | |
| Thr | Phe | Ser | Gly | Phe | Leu | Val | Tyr | Ser | Asp | Trp | His | Ser | Ser | Pro | |
| | | | 230 | | | | | | 235 | | | | | 240 | |
| Val | Phe | Ala | | | | | | | | | | | | | |

<210> 43
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 <220>
 <223> Synthetic oligonucleotide probe

 <400> 43
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 <210> 44
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 <220>
 <223> Synthetic oligonucleotide probe

 <400> 44
 agccagcctc gctctcgg 18

 <210> 45
 <211> 18
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 45
 gtctgcgatc aggtctgg 18

 <210> 46
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 46
 gaaagaggca atggattcgc 20

 <210> 47
 <211> 24
 <212> DNA
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 <220>
 <223> Synthetic oligonucleotide probe

 <400> 47
 gacttacact tgccagcaca gcac 24

 <210> 48
 <211> 45
 <212> DNA
 <213> Artificial Sequence

T00E30" 96E44660

<220>

<223> Synthetic oligonucleotide probe

<400> 48

ggagcaccac caactggagg gtccggagta gcgagcgccc cgaag 45

<210> 49

<211> 1876

<212> DNA

<213> Homo Sapien

<400> 49

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atccagcctg agaaacaagc cgggtggctg agccaggctg tgcacggagc 100

acctgacggg cccaacagac ccatgctgca tccagagacc tcccctggcc 150

gggggcatct cctggctgtg ctctggccc tcttggcac cacctgggca 200

gaggtgtggc caccagct gcaggagcag gctccgatgg ccggagccct 250

gaacaggaag gagagtttct tgctctctc cctgcacaac cgctgcgca 300

gctgggtcca gcccctgcy gctgacatgc ggaggctgga ctggagtgc 350

agcctggccc aactggctca agccaggga gccctctgtg gaatcccaac 400

cccagcctg gcatccggcc tgtggcgac cctgcaagtg ggctggaaca 450

tgcagctgct gcccggggc ttggcgctct ttgttgaagt ggtagccta 500

tggtttgcag aggggcagcy gtacagccac gcggcaggag agtgtgctc 550

caacgccacc tgcaccact acacgcagct cgtgtgggccc acctcaagcc 600

agctgggctg tgggcggcac ctgtgctctg caggccagac agcgatagaa 650

gcctttgtct gtgcctact ccccgaggc aactgggagg tcaacgggaa 700

gacaatcatc ccctataaga aggggtgctg gtgttcgctc tgcacagcca 750

gtgtctcagg ctgcttcaaa gcctgggacc atgcaggggg gctctgtgag 800

gtccccagga atccttgctg catgagctgc cagaaccatg gacgtctcaa 850

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gccaagtgcg gtgcagcctg cagtgtgtgc acggccgggt ccgggaggag 950

gagtgtcgt gcgtctgtga catcggtac gggggagccc agtgtgccac 1000

caaggtgcat ttcccttcc acacctgtga cctgaggatc gacggagact 1050

gcttcatggt gtcttcagag gcagacacct attacagagc caggatgaaa 1100

tgtcagagga aaggcggggt gctggcccag atcaagagcc agaaagtgc 1150

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| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|--|-----|
| | | | | 110 | | | | | | 115 | | | | | | 120 |
| Val | Glu | Val | Val | Ser 125 | Leu | Trp | Phe | Ala | Glu 130 | Gly | Gln | Arg | Tyr | Ser 135 | | |
| His | Ala | Ala | Gly | Glu 140 | Cys | Ala | Arg | Asn | Ala 145 | Thr | Cys | Thr | His | Tyr 150 | | |
| Thr | Gln | Leu | Val | Trp 155 | Ala | Thr | Ser | Ser | Gln 160 | Leu | Gly | Cys | Gly | Arg 165 | | |
| His | Leu | Cys | Ser | Ala 170 | Gly | Gln | Thr | Ala | Ile 175 | Glu | Ala | Phe | Val | Cys 180 | | |
| Ala | Tyr | Ser | Pro | Gly 185 | Gly | Asn | Trp | Glu | Val 190 | Asn | Gly | Lys | Thr | Ile 195 | | |
| Ile | Pro | Tyr | Lys | Lys 200 | Gly | Ala | Trp | Cys | Ser 205 | Leu | Cys | Thr | Ala | Ser 210 | | |
| Val | Ser | Gly | Cys | Phe 215 | Lys | Ala | Trp | Asp | His 220 | Ala | Gly | Gly | Leu | Cys 225 | | |
| Glu | Val | Pro | Arg | Asn 230 | Pro | Cys | Arg | Met | Ser 235 | Cys | Gln | Asn | His | Gly 240 | | |
| Arg | Leu | Asn | Ile | Ser 245 | Thr | Cys | His | Cys | His 250 | Cys | Pro | Pro | Gly | Tyr 255 | | |
| Thr | Gly | Arg | Tyr | Cys 260 | Gln | Val | Arg | Cys | Ser 265 | Leu | Gln | Cys | Val | His 270 | | |
| Gly | Arg | Phe | Arg | Glu 275 | Glu | Glu | Cys | Ser | Cys 280 | Val | Cys | Asp | Ile | Gly 285 | | |
| Tyr | Gly | Gly | Ala | Gln 290 | Cys | Ala | Thr | Lys | Val 295 | His | Phe | Pro | Phe | His 300 | | |
| Thr | Cys | Asp | Leu | Arg 305 | Ile | Asp | Gly | Asp | Cys 310 | Phe | Met | Val | Ser | Ser 315 | | |
| Glu | Ala | Asp | Thr | Tyr 320 | Tyr | Arg | Ala | Arg | Met 325 | Lys | Cys | Gln | Arg | Lys 330 | | |
| Gly | Gly | Val | Leu | Ala 335 | Gln | Ile | Lys | Ser | Gln 340 | Lys | Val | Gln | Asp | Ile 345 | | |
| Leu | Ala | Phe | Tyr | Leu 350 | Gly | Arg | Leu | Glu | Thr 355 | Thr | Asn | Glu | Val | Thr 360 | | |
| Asp | Ser | Asp | Phe | Glu 365 | Thr | Arg | Asn | Phe | Trp 370 | Ile | Gly | Leu | Thr | Tyr 375 | | |
| Lys | Thr | Ala | Lys | Asp 380 | Ser | Phe | Arg | Trp | Ala 385 | Thr | Gly | Glu | His | Gln 390 | | |
| Ala | Phe | Thr | Ser | Phe 395 | Ala | Phe | Gly | Gln | Pro 400 | Asp | Asn | His | Gly | Leu 405 | | |

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aggctgaaaa ccaaaccctt gatgacagaa ttctcagtga agtctacat 250
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 cttctgaaga ccaggacatt gagttccaga tgcagattcc agctgcagct 350
 ttcacaccca acttcactat gcttattgga gacaagggtg atcagggcga 400
 aattacagag agagaaaaga agagtgggtga tagggtaaaa gagaaaagga 450
 ataaaaccac agaagaaaat ggagagaagg ggactgaaat attcagagct 500
 tctgcagtga ttcccagcaa ggacaaagcc gcctttttcc tgagttatga 550
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 gtacaacaag ccaggattgc ccagaatgga attttgggag actttatcat 850
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0944396-033001

| 410 | 415 | 420 |
|-------------------------------------|-------------------------|-----|
| Asn Asn Thr Arg Glu Ala Ala Arg Gly | Gln Val Cys Ile Phe Thr | |
| 425 | 430 | 435 |
| Ile Gly Ile Gly Asn Asp Val Asp Phe | Arg Leu Leu Glu Lys Leu | |
| 440 | 445 | 450 |
| Ser Leu Glu Asn Cys Gly Leu Thr Arg | Arg Val His Glu Glu Glu | |
| 455 | 460 | 465 |
| Asp Ala Gly Ser Gln Leu Ile Gly Phe | Tyr Asp Glu Ile Arg Thr | |
| 470 | 475 | 480 |
| Pro Leu Leu Ser Asp Ile Arg Ile Asp | Tyr Pro Pro Ser Ser Val | |
| 485 | 490 | 495 |
| Val Gln Ala Thr Lys Thr Leu Phe Pro | Asn Tyr Phe Asn Gly Ser | |
| 500 | 505 | 510 |
| Glu Ile Ile Ile Ala Gly Lys Leu Val | Asp Arg Lys Leu Asp His | |
| 515 | 520 | 525 |
| Leu His Val Glu Val Thr Ala Ser Asn | Ser Lys Lys Phe Ile Ile | |
| 530 | 535 | 540 |
| Leu Lys Thr Asp Val Pro Val Arg Pro | Gln Lys Ala Gly Lys Asp | |
| 545 | 550 | 555 |
| Val Thr Gly Ser Pro Arg Pro Gly Gly | Asp Gly Glu Gly Asp Thr | |
| 560 | 565 | 570 |
| Asn His Ile Glu Arg Leu Trp Ser Tyr | Leu Thr Thr Lys Glu Leu | |
| 575 | 580 | 585 |
| Leu Ser Ser Trp Leu Gln Ser Asp Asp | Glu Pro Glu Lys Glu Arg | |
| 590 | 595 | 600 |
| Leu Arg Gln Arg Ala Gln Ala Leu Ala | Val Ser Tyr Arg Phe Leu | |
| 605 | 610 | 615 |
| Thr Pro Phe Thr Ser Met Lys Leu Arg | Gly Pro Val Pro Arg Met | |
| 620 | 625 | 630 |
| Asp Gly Leu Glu Glu Ala His Gly Met | Ser Ala Ala Met Gly Pro | |
| 635 | 640 | 645 |
| Glu Pro Val Val Gln Ser Val Arg Gly | Ala Gly Thr Gln Pro Gly | |
| 650 | 655 | 660 |
| Pro Leu Leu Lys Lys Pro Asn Ser Val | Lys Lys Lys Gln Asn Lys | |
| 665 | 670 | 675 |
| Thr Lys Lys Arg His Gly Arg Asp Gly | Val Phe Pro Leu His His | |
| 680 | 685 | 690 |
| Leu Gly Ile Arg | | |

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<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 56
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<210> 57
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 57
cacatcgagc gtctctgg 18

<210> 58
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 58
agccgctcct tctccggttc atcg 24

<210> 59
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 59
tggaaggacc acttgatata agtcactcca gacagcatca gggatggg 48

<210> 60
<211> 1413
<212> DNA
<213> Homo Sapien

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tgctgttgct cttctccgcc gcggcactga tccccacagg tgatgggcag 150
aatctgttta cgaaagacgt gacagtgatc gagggagagg ttgcgaccat 200

cagttgccaa gtcaataaga gtgacgactc tgtgattcag ctactgaatc 250
 ccaacaggca gaccatztat ttcagggact tcaggccttt gaaggacagc 300
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 cacattcaga tgacttatcc tctacaaggc ttaacccggg aaggggacgc 800
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 cccaacctgt tcatcaataa cctaaacaaa acagataatg gtacataaccg 950
 ctgtgaagct tcaaacatag tggggaaagc tcaactcgat tatatgctgt 1000
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 agcaggtgaa gaaggctcga tcagggcagt ggatcatgcc gtgatcggtg 1150
 gcgctcgtggc ggtgggtggg ttccgcatgc tgtgcttgct catcattctg 1200
 gggcgctatt ttgccagaca taaaggtaca tacttcactc atgaagccaa 1250
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 ctttttgttt caatgaggtg tccaactggc cctatttaga tgataaagag 1400
 acagtgatat tgg 1413

<210> 61
 <211> 440
 <212> PRT
 <213> Homo Sapien

<400> 61
 Met Ala Ser Val Val Leu Pro Ser Gly Ser Gln Cys Ala Ala Ala
 1 5 10 15

| | 305 | 310 | 315 |
|-----------------|---------------------|---------------------|-----|
| Ile Val Gly Lys | Ala His Ser Asp Tyr | Met Leu Tyr Val Tyr | Asp |
| | 320 | 325 | 330 |
| Pro Pro Thr Thr | Ile Pro Pro Pro Thr | Thr Thr Thr Thr Thr | Thr |
| | 335 | 340 | 345 |
| Thr Thr Thr Thr | Thr Thr Ile Leu Thr | Ile Ile Thr Asp Ser | Arg |
| | 350 | 355 | 360 |
| Ala Gly Glu Glu | Gly Ser Ile Arg Ala | Val Asp His Ala Val | Ile |
| | 365 | 370 | 375 |
| Gly Gly Val Val | Ala Val Val Val Phe | Ala Met Leu Cys Leu | Leu |
| | 380 | 385 | 390 |
| Ile Ile Leu Gly | Arg Tyr Phe Ala Arg | His Lys Gly Thr Tyr | Phe |
| | 395 | 400 | 405 |
| Thr His Glu Ala | Lys Gly Ala Asp Asp | Ala Ala Asp Ala Asp | Thr |
| | 410 | 415 | 420 |
| Ala Ile Ile Asn | Ala Glu Gly Gly Gln | Asn Asn Ser Glu Glu | Lys |
| | 425 | 430 | 435 |
| Lys Glu Tyr Phe | Ile | | |
| | 440 | | |

<210> 62
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 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

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 ggcttctgct gttgctcttc tccg 24

<210> 63
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

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 <212> PRT
 <213> Homo Sapien

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 Val Pro Arg Asp Val Pro Pro Asp Thr Val Gly Leu Tyr Val Phe
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 Glu Asn Gly Ile Thr Met Leu Asp Ala Ser Ser Phe Ala Gly Leu
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 Pro Gly Leu Gln Leu Leu Asp Leu Ser Gln Asn Gln Ile Ala Ser
 80 85 90
 Leu Arg Leu Pro Arg Leu Leu Leu Leu Asp Leu Ser His Asn Ser
 95 100 105
 Leu Leu Ala Leu Glu Pro Gly Ile Leu Asp Thr Ala Asn Val Glu

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| Ala | Leu | Arg | Leu | Ala | Gly | Leu | Gly | Leu | Gln | Gln | Leu | Asp | Glu | Gly |
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| Leu | Phe | Ser | Arg | Leu | Arg | Asn | Leu | His | Asp | Leu | Asp | Val | Ser | Asp |
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| Asn | Gln | Leu | Glu | Arg | Val | Pro | Pro | Val | Ile | Arg | Gly | Leu | Arg | Gly |
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| Leu | Thr | Arg | Leu | Arg | Leu | Ala | Gly | Asn | Thr | Arg | Ile | Ala | Gln | Leu |
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| Leu | Phe | Pro | Arg | Leu | Arg | Leu | Leu | Ala | Ala | Ala | Arg | Asn | Pro | Phe |
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| Asn | Cys | Val | Cys | Pro | Leu | Ser | Trp | Phe | Gly | Pro | Trp | Val | Arg | Glu |
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| Pro | Pro | Lys | Asn | Ala | Gly | Arg | Leu | Leu | Leu | Glu | Leu | Asp | Tyr | Ala |
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| Asp | Phe | Gly | Cys | Pro | Ala | Thr | Thr | Thr | Thr | Ala | Thr | Val | Pro | Thr |
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| Thr | Arg | Pro | Val | Val | Arg | Glu | Pro | Thr | Ala | Leu | Ser | Ser | Ser | Leu |
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| Ala | Pro | Thr | Trp | Leu | Ser | Pro | Thr | Ala | Pro | Ala | Thr | Glu | Ala | Pro |
| 305 | | | | | | | | 310 | | | | 315 | | |
| Ser | Pro | Pro | Ser | Thr | Ala | Pro | Pro | Thr | Val | Gly | Pro | Val | Pro | Gln |
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| Pro | Gln | Asp | Cys | Pro | Pro | Ser | Thr | Cys | Leu | Asn | Gly | Gly | Thr | Cys |
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 <213> Homo Sapien

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 Leu Trp Leu Ser Trp Gly Ala Ala Leu Gly Ala Val Ala Cys Ala
 35 40 45
 Met Ala Leu Leu Thr Gln Gln Thr Glu Leu Gln Ser Leu Arg Arg
 50 55 60
 Glu Val Ser Arg Leu Gln Gly Thr Gly Gly Pro Ser Gln Asn Gly
 65 70 75
 Glu Gly Tyr Pro Trp Gln Ser Leu Pro Glu Gln Ser Ser Asp Ala
 80 85 90
 Leu Glu Ala Trp Glu Asn Gly Glu Arg Ser Arg Lys Arg Arg Ala
 95 100 105
 Val Leu Thr Gln Lys Gln Lys Lys Gln His Ser Val Leu His Leu
 110 115 120

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| Ser | Val | Ile | Ile | Pro | Arg | Ala | Arg | Ala | Lys | Leu | Asn | Leu | Ser | Pro |
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 <211> 2849
 <212> DNA
 <213> Homo Sapien

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 <211> 281
 <212> PRT
 <213> Homo Sapien

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 35 40 45
 Pro Pro Asp His Ala Glu Arg Ala Glu Glu Gln His Glu Lys Tyr
 50 55 60
 Arg Pro Ser Gln Asp Gln Gly Leu Pro Ala Ser Arg Cys Leu Arg
 65 70 75
 Cys Cys Asp Pro Gly Thr Ser Met Tyr Pro Ala Thr Ala Val Pro
 80 85 90
 Gln Ile Asn Ile Thr Ile Leu Lys Gly Glu Lys Gly Asp Arg Gly
 95 100 105
 Asp Arg Gly Leu Gln Gly Lys Tyr Gly Lys Thr Gly Ser Ala Gly

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| Ala Arg Gly His Thr Gly Pro Lys Gly Gln Lys Gly Ser Met Gly | | |
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| Ala Pro Gly Glu Arg Cys Lys Ser His Tyr Ala Ala Phe Ser Val | | |
| 140 | 145 | 150 |
| Gly Arg Lys Lys Pro Met His Ser Asn His Tyr Tyr Gln Thr Val | | |
| 155 | 160 | 165 |
| Ile Phe Asp Thr Glu Phe Val Asn Leu Tyr Asp His Phe Asn Met | | |
| 170 | 175 | 180 |
| Phe Thr Gly Lys Phe Tyr Cys Tyr Val Pro Gly Leu Tyr Phe Phe | | |
| 185 | 190 | 195 |
| Ser Leu Asn Val His Thr Trp Asn Gln Lys Glu Thr Tyr Leu His | | |
| 200 | 205 | 210 |
| Ile Met Lys Asn Glu Glu Glu Val Val Ile Leu Phe Ala Gln Val | | |
| 215 | 220 | 225 |
| Gly Asp Arg Ser Ile Met Gln Ser Gln Ser Leu Met Leu Glu Leu | | |
| 230 | 235 | 240 |
| Arg Glu Gln Asp Gln Val Trp Val Arg Leu Tyr Lys Gly Glu Arg | | |
| 245 | 250 | 255 |
| Glu Asn Ala Ile Phe Ser Glu Glu Leu Asp Thr Tyr Ile Thr Phe | | |
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| Ser Gly Tyr Leu Val Lys His Ala Thr Glu Pro | | |
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 <212> DNA
 <213> Artificial Sequence

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 <223> Synthetic oligonucleotide probe

<400> 79
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<210> 80
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<220>
 <223> Synthetic oligonucleotide probe

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<210> 81

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 tggttccaga taaaatcaac tgtttatatc aatttcta at ggatttgctt 2200
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<210> 83
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 <212> PRT
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<400> 83
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[illegible]

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| 305 | 310 | 315 |
| Ser Leu Glu Thr Ile Pro Phe Thr Glu Ile Ser Asn Leu Thr Leu | | |
| 320 | 325 | 330 |
| Asn Thr Gly Asn Val Tyr Asn Pro Thr Ala Leu Ser Met Ser Asn | | |
| 335 | 340 | 345 |
| Val Glu Ser Ser Thr Met Asn Lys Thr Ala Ser Trp Glu Gly Arg | | |
| 350 | 355 | 360 |
| Glu Ala Ser Pro Gly Ser Ser Ser Gln Gly Ser Val Pro Glu Asn | | |
| 365 | 370 | 375 |
| Gln Tyr Gly Leu Pro Phe Glu Lys Trp Leu Leu Ile Gly Ser Leu | | |
| 380 | 385 | 390 |
| Leu Phe Gly Val Leu Phe Leu Val Ile Gly Leu Val Leu Leu Gly | | |
| 395 | 400 | 405 |
| Arg Ile Leu Ser Glu Ser Leu Arg Arg Lys Arg Tyr Ser Arg Leu | | |
| 410 | 415 | 420 |
| Asp Tyr Leu Ile Asn Gly Ile Tyr Val Asp Ile | | |
| 425 | 430 | |

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<210> 86
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 tgggagaaca gctgggaaat gttgccagag gaataaacat tgccattgtc 350
 aactatgtaa ctgggaatgt gacagcaaca cgatgttttg atatgtatga 400
 aggcgataac tctggaccga tgacaaagtt tattcagagt gctgctccaa 450
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SECRET

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<220>
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<400> 97
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<210> 98
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<220>
<223> Synthetic oligonucleotide probe

<400> 98
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<220>
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<400> 100
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SECRET

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<213> Artificial Sequence

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<210> 117

00944396-083001

090618Z JUL 76

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